PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB2005/003948	13.10.2005	13.10.2004

International Patent Classification (IPC) or both national classification and IPC
G11B20/00, H04N5/913, H04H1/00, G10L19/00

Applicant
DWIGHT CAVENDISH SYSTEMS LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material:

      ☐ in written format

      ☐ in computer readable form

   c. time of filing/furnishing:

      ☐ contained in the international application as filed.

      ☐ filed together with the international application in computer readable form.

      ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating theret has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-51
	No: Claims	
Inventive step (IS)	Yes: Claims	6-10, 17, 18, 24-28, 35, 36, 39, 40, 46, 47
	No: Claims	1-5, 11-16, 19-23, 29-34, 37, 38, 41-45, 48-51
Industrial applicability (IA)	Yes: Claims	1-51
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

1 Reference is made to the following documents:

D1 : WO 99/57723 A (SPIRO J. PANDELIDIS HIGH TECH APPLICATIONS; WIJNEN, ARIE, MARINUS; PAN) 11 November 1999

D2 : US 2002/009000 A1 (GOLDBERG PAUL R ET AL) 24 January 2002

D3 : EP 0 392 612 A (N.V. PHILIPS GLOEILAMPENF.) 17 October 1990

D4: US-A-5 907 656 (OGURO ET AL) 25 May 1999

2 INDEPENDENT CLAIMS 1 AND 16

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not inventive in the sense of Article 33(3) PCT.
Document D1 discloses an apparatus for applying an anti-copy signal to a signal to be protected, comprising:
an input for receiving a signal to be protected (fig.16, ref.101-105);
means for adding a protection signal to the audio component of the signal to form a protected signal such that on recording by a tape recorder (pg.6, l.34 - pg.7, l.25) in which at least an audio component of the signal is recorded with discontinuities (pg.6, l.1-8), and in which a compensating circuit is employed to mask the discontinuities on recording and/or playback, the protection signal impairs the operation of the compensating circuit such that the attempts to mask the discontinuities are audible on playback of a copy (pg.7, l.22-38); and
an output for outputting the protected signal (fig.16, ref.108-112).

It is to be noted that in D1 the "compensating circuit" corresponds with a demodulation circuit that is being impaired by the second disturbance signal and is thereby not able to correctly demodulate the audio component of the signal, resulting in partial demodulation and in disturbances becoming audible. This concept provides the same advantages as in the present application. The skilled person would therefore regard it as a normal option to interfer with the correct functioning of any part of the playback apparatus (the demodulating means or any other compensating circuit) in order to make the inaudible protection signals to be audible.

2.2 For the sake of completeness it will be added that the subject-matter of claim 1 is not inventive in the sense of Article 33(3) PCT either over the disclosure of documents D2 and D3.

In this respect, in document **D2** it is assumed (eg. par.[0081]-[0086]) that significant changes in input audio signal characteristics will not take place over the time window used by the Huffman encoding process, and can be used by the one generation compression process. One example of such use is the addition by a one generation audio compression process of short duration audio data or noise bursts to its output audio data stream. Slight constructional changes in the apparatus of claim 1 comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen.

On the other hand, **D3** discloses signal-processing units adapted to insert the first and the second auxiliary signal, the auxiliary signals being selected in such a way that they are not audible to a listener during reproduction of the audio signal (col.8, l.35-42). Moreover, figure 6 shows an arrangement for adding the auxiliary signals to the left-hand and right-hand channels (col.11), possibly in a RDAT recorder (col.8). This means that the auxiliary signals are added when the recording heads are switched (left-hand channels to right-hand channels, and vice versa); therefore, the subject-matter of claim 1, but also that of **claim 16** is not inventive in the sense of Article 33(3) PCT over the disclosure of D3.

3 INDEPENDENT CLAIMS 19 AND 34

3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 19 and 36 is not inventive in the sense of Article 33(3) PCT. The subject matter independent **claims 19 and 36** corresponds in terms of procedural steps to that of claims 1 and 16, respectively. The objections raised in respect of this latter claims; therefore, also apply, mutatis mutandis, to independent claims 19 and 36, which thus do not meet either the requirements of the PCT in respect of inventive step (Article 33(3) PCT).

4 INDEPENDENT CLAIMS 37 AND 38

4.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 37 and 38 is not inventive in the sense of Article 33(3) PCT. Independent **claims 37 and 38** correspond to a signals created using the non-inventive methods according to claims 19 and 34, respectively. Obviously, these claims are not either inventive in the sense of Article 33(3) PCT.

5 INDEPENDENT CLAIMS 41 AND 42

5.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 41 and 42** is not inventive in the sense of Article 33(3) PCT. A storage medium having the signal of claims 37 or 38 (which are not considered to be inventive), or a computer readable medium containing a computer program which when executed on a computer causes the computer to perform the steps of method claims 19 or 34 (which are not considered to be inventive), will obviously not be inventive.

6 INDEPENDENT CLAIMS 44, 49 AND 51

6.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim **44** is not inventive in the sense of Article 33(3) PCT.
A detector according to **claim 44**, as far as it can be understood (this claim is not clear in the sense of Article 6 PCT), as well as the apparatus of **claim 49** and the method of **claim 51** are also not inventive in the light of the disclosure of documents D2 and D3, as they only represent inverse or mirror procedural steps or functional features of removing protection signals previously added by the apparatus of claim 1 or by steps of a method like in claim 19. Both documents disclose the inverse procedure.

7 DEPENDENT CLAIMS 2-5, 11-15, 20-23, 29-33, 43, 45, 48, 50
Dependent claims 2-5, 11-15, 20-23, 29-33, 43, 45 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT). All of the

features are explicitly or implicitly disclosed or directly derivable from documents D1-D3 (please refer to the passages cited in the International Search Report).

8 INDEPENDENT CLAIMS 17, 18, 35, 36, 39, 40, 46

8.1 CLAIMS 17, 18, 35, 36, 39, 40 and 46 are directed to apparatus, methods, signals produced by these methods and detectors for detecting said signals, in which audio protection signals are added to the audio component of the signal at or near the vertical synchronisation rate of the video recorder or at a multiple of the line synchronisation rate.

None of the available prior art discloses or renders obvious the subject-matter claimed. The document D1-D3 cited in the search report are silent in this respect. Even though it is common in the prior art to add protection signals in the video component at the vertical synchronisation rate or at a multiple of the line synchronisation rate, or even to add "fake" vertical sync pulses in order to provide for copy protection (eg. D4), there is apparently no precedent in the prior art to use properties of the video component in the signal in order to add protection in the audio component of the signal.

9 DEPENDENT CLAIMS 6-10, 24-28, 47

The combination of the features of dependent claims 6-10, 24-28, 50 are neither known from, nor rendered obvious by, the available prior art, since they relate to preferred embodiments of the invention in relation with the independent claims which apparently meet the requirements of Article 33(2)-(4) PCT.

INTERNATIONAL SEARCH REPORT

Inter nal application No
PCT/GB2005/003948

A. CLASSIFICATION OF SUBJECT MATTER
G11B20/00 H04N5/913 H04H1/00 G10L19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G11B H04N H04H G10L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/57723 A (SPIRO J. PANDELIDIS HIGH TECH APPLICATIONS; WIJNEN, ARIE, MARINUS; PAN) 11 November 1999 (1999-11-11) page 5, line 7 - page 9, line 39	1-4, 12-15, 19-22, 30-33, 37,41-43
X	US 2002/009000 A1 (GOLDBERG PAUL R ET AL) 24 January 2002 (2002-01-24) paragraph '0058! - paragraph '0062! paragraph '0078! - paragraph '0087!	1-3,5, 11,13, 19-21, 23,29, 31,37, 41,42, 49,51
A		50

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 February 2006	02/03/2006

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INTERNATIONAL SEARCH REPORT

Inte nal application No
PCT/GB2005/003948

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 392 612 A (N.V. PHILIPS' GLOEILAMPENFABRIEKEN) 17 October 1990 (1990-10-17) column 8, line 4 - column 14, line 36	1,13,16, 19,31, 34,37, 38,41, 42,44, 45,48
X	US 5 394 274 A (KAHN ET AL) 28 February 1995 (1995-02-28)	1,13,19, 23,37, 41,42
A	column 5, line 55 - column 7, line 41	5
A	US 5 907 656 A (OGURO ET AL) 25 May 1999 (1999-05-25) column 3, line 59 - column 4, line 15 column 10, line 44 - column 13, line 19	1,2, 5-10, 17-20, 23-28, 35-37, 39,40, 46,47
A	US 2004/039913 A1 (KRUSE SKY) 26 February 2004 (2004-02-26) paragraph '0018! - paragraph '0027!	1,19,37
A	US 5 155 767 A (NOLLER ET AL) 13 October 1992 (1992-10-13) column 2, line 61 - column 3, line 36 column 2 - column 3; figure 4	1-6, 19-23

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Interi ial application No
PCT/GB2005/003948

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9957723	A	11-11-1999	AT	232639 T	15-02-2003
			AU	4259699 A	23-11-1999
			BR	9910184 A	09-01-2001
			CA	2331111 A1	11-11-1999
			CN	1299509 A	13-06-2001
			DE	69905358 D1	20-03-2003
			JP	2002513982 T	14-05-2002
US 2002009000	A1	24-01-2002	NONE		
EP 0392612	A	17-10-1990	CN	1046408 A	24-10-1990
			JP	2292776 A	04-12-1990
			NL	8900934 A	01-11-1990
			US	5083224 A	21-01-1992
US 5394274	A	28-02-1995	NONE		
US 5907656	A	25-05-1999	NONE		
US 2004039913	A1	26-02-2004	NONE		
US 5155767	A	13-10-1992	NONE		